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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,457	04/08/2004	Morimoto Hidenori	544782000300	1336

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EXAMINER	
ROSE, KIESHA L	

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2822	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

TH

Office Action Summary	Application No.	Applicant(s)	
	10/821,457	HIDENORI, MORIMOTO	
	Examiner	Art Unit	
	Kiesha L. Rose	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the RCE filed 5 January 2007.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Gallagher et al. (U.S. Patent 5,640,343).

Gallagher discloses a MRAM (Fig. 2) that contains a memory cell comprising a variable resistive element and a current control element controlling a current flowing in variable resistive element wherein variable resistive element has a resistance value which is varied by applying a voltage to both ends of the variable resistive element and is stored as information by the variable resistive element (Column 5, lines 18-40) and the current control element is an Schottky diode. In regards to the variable resistive element storing information, since this is a memory device and the variable resistive element is the memory element then it would store information. In addition, a voltage is applied to the variable resistive element that varies the resistance of the variable resistive element. (Column 5, lines 18-40)

Claim 11 is rejected under 35 U.S.C. 102(b) as being anticipated by Gallagher.

Gallagher discloses a MRAM (Fig. 2) that contains a memory cell located at positions where word lines (1-3) and bit lines (4-6) are arranged in matrix intersect with each other, the memory cell is constituted by a series circuit including a variable resistive element (78) element wherein variable resistive element has a resistance value which is varied by applying a voltage to both ends of the variable resistive element (Column 5, lines 18-40) and an Schottky diode (7) (Column 10, lines 60-65) controlling a current flowing in variable resistive element and one end of the series circuit is connected to the word line and the other to the bit line. In regards to the variable resistive element storing information, since this is a memory device and the variable resistive element is the memory element then it would store information.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gallagher in view of Yagishita et al. (U.S. Publication 2002/0179980).

Gallagher disclose all the limitations except for the Schottky diode to have an Schottky barrier. Whereas Yagishita discloses a semiconductor device (Fig. 2l) that contains a first electrode (115) of the Schottky diode that is polycrystalline silicon formed in an insulating film, a second electrode (114) which is a metal film deposited on

first electrode, a Schottky barrier between first electrode and a metal silicide (Page 3, Paragraph 54) formed between first electrode and second electrode, the resistive element (117) is a perovskite type crystalline structure, the first electrode is a second conductive type impurity region on first conductivity substrate (101) and the second electrode is deposited on impurity region, the semiconductor substrate is a silicon substrate and the impurity region is formed in an element isolation region (102) formed in substrate. An Schottky barrier is formed between the first and second electrode to avoid drain-induced barrier lowering. (Page 3, Paragraph 40) Therefore it would have been obvious to one at the time the invention was made to modify the device of Gallagher by incorporating an Schottky barrier and first and second electrode to avoid drain-induced barrier lowering as taught by Yagishita. In regards to claim 10, that the variable resistive element is deposited on second electrode by a self-aligning manner this is a process limitation, a *"product by process"* claim is directed to the product per se, no matter how actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972): *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); In re Fessmann, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289 (CAFC 1983) final product per se which must be determined in a *"product by, all of"* claim, and not the patentability of the process, and that an old or obvious product, whether claimed in *"product by process"* claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear. Even though product –by [-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself.

The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted)."

Claims 12-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gallagher in view of Yagishita et al. (U.S. Publication 2002/0179980).

Gallagher disclose all the limitations except for the Schottky diode to have an Schottky barrier. Whereas Yagishita discloses a semiconductor device (Fig. 2I) that contains a first electrode (115) of the Schottky diode that is polycrystalline silicon formed in an insulating film, a second electrode (114) which is a metal film deposited on first electrode, a Schottky barrier between first electrode and a metal silicide (Page 3, Paragraph 54) formed between first electrode and second electrode, the resistive element (117) is a perovskite type crystalline structure, the first electrode is a second conductive type impurity region on first conductivity substrate (101) and the second electrode is deposited on impurity region, the semiconductor substrate is a silicon substrate and the impurity region is formed in an element isolation region (102) formed in substrate. An Schottky barrier is formed between the first and second electrode to avoid drain-induced barrier lowering. (Page 3, Paragraph 40) Therefore it would have been obvious to one at the time the invention was made to modify the device of Gallagher by incorporating an Schottky barrier and first and second electrode to avoid drain-induced barrier lowering as taught by Yagishita. In regards to claim 23, that the variable resistive element is deposited on second electrode by a self-aligning manner

this is a process limitation, a *"product by process"* claim is directed to the product per se, no matter how actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972): *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); In re Fessmann, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289 (CAFC 1983) final product per se which must be determined in a *"product by, all of"* claim, and not the patentability of the process, and that an old or obvious product, whether claimed in *"product by process"* claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear. Even though product –by [-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted)."

Response to Arguments

Applicant's arguments filed 6/21/07 have been fully considered but they are not persuasive. Applicant argues that the Gallagher does not disclose the variable resistive element that stores information as claimed. This erroneous as Gallagher discloses a variable resistive element and as disclosed in the previous office action that since the variable resistive element is part of a memory device and function as a memory device it would be used to store information. Therefore the rejection stands.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiesha L. Rose whose telephone number is 571-272-1844. The examiner can normally be reached on T-F 8:30-6:00 off Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KLR

Kiesha L. Rose
Primary Examiner
9/17/07